

Agricultural Science and Technology I

Levels: Grades 9-12
Units of Credit: Year (1.0)
CIP Code: 010311
Prerequisite: None

COURSE DESCRIPTION

This is an introductory course for students in agricultural education and can serve as the foundation course for advanced courses in animal science, plant science, horticulture, natural resources, agricultural systems technology, or the composite course agricultural science and technology II. Topics covered will be basic animal and plant science, personal and leadership development, and agricultural career awareness. Through this process the students will develop agricultural literacy.

CORE STANDARDS, OBJECTIVES, AND INDICATORS

STANDARD

010311-01

Students will develop an understanding of the role of FFA in Agricultural Education Programs.

OBJECTIVES

010311-0101

Students will develop an understanding of the history and organization of FFA.

- Investigate the history and organization of the FFA.

010311-0102

Students will recognize opportunities in the FFA

- Discover opportunities in the FFA.
- Determine FFA degrees, awards, and Career Development Events (CDE's).

010311-0103

Students will explain leadership skill opportunities in FFA.

- Develop awareness of FFA officer duties and responsibilities.
- Plan and organize an FFA meeting.

010311-0104

Students will recognize various community and government organizations.

- Research youth clubs and organizations.
- Appreciate community service organizations and involvement.

STANDARD

010311-02

Students will understand the benefits of a Supervised Agricultural Experience (SAE) Program.

OBJECTIVES

010311-0201

Students will determine purposes and procedures of SAE Programs.

- Determine the benefits of an SAE.

010311-0202

Students will determine various kinds of SAE Programs.

- Discuss types of SAE projects.

010311-0203

Students will plan and develop an SAE Program.

- Research possible SAE Programs.
- Develop an annual plan for an SAE Program.
- Implement an SAE Program and record system.

010311-0204

Students will explain SAE record keeping and program expansion opportunity.

- Maintain and use SAE records.
- Develop a long-range plan for an SAE Program.

STANDARD
010311-03

Students will understand impacts of agriculture on society.

OBJECTIVES

010311-0301

Students will identify careers in agriculture/horticulture industries.

- Determine the nature of the agriculture/horticulture industry.
- Indicate agriculture/horticulture occupations.
- Determine needs and competencies for successful employment.
- Determine working conditions and earning potential.
- Determine individual agriculture/horticulture interests.

010311-0302

Students will recognize the role of agriculture in society.

- Determine the history of agriculture.
- Summarize the importance of agriculture to society.
- Describe trends in agriculture.

010311-0303

Students will identify the relationship between agriculture and the environment.

- Determine the kinds and importance of natural resources.
- Describe components and processes in ecosystems.
- Determine sources of environmental pollution.
- Compare methods of waste disposal.
- Determine how to reduce agricultural pollution.

010311-0304

Students will describe the world food and fiber system.

- Recognize scope of world agricultural production.
- Determine the use of technology in world food and fiber production.
- Illustrate the role of consumers in world agriculture systems.

010311-0305

Students will determine the role of research and development in agriculture/horticulture.

- Explain major areas and benefits of agriscience and technology.
- Give examples of agricultural research practices and applications.
- Determine the role of international development in agriculture.

010311-0306

Students will recognize the impact of technology on agriculture.

- Determine the nature of biotechnology.
- Determine the basis for biotechnology research.
- Recognize agricultural applications of biotechnology.
- Determine future impacts of and concerns brought about by agricultural biotechnology research.
- Identify career opportunities in agricultural biotechnology.
- Determine the role of science and technology in agricultural production.
- Determine the role of precision technologies.

STANDARD
010311-04

Students will understand skills needed for employment in the agriculture/horticulture industry.

OBJECTIVES

010311-0401

Students will analyze personal skills needed for successful employment.

- Explain self-understanding and personal assessment.
- Develop human relations skills in the workplace.

010311-0402

Students will illustrate communication skills needed for successful employment.

- Define communication and its components and processes.
- Describe effective communication techniques.
- Identify effective speaking techniques.
- Develop listening techniques.
- Organize and present a persuasive message.
- Use communication skills in appropriate situations.

010311-0403

Students will apply mathematics skills used in the agriculture/horticulture industry.

- Use English and metric measurements.
- Determine area and volume.
- Calculate interest rates.

010311-0404

Students will demonstrate problem-solving skills used in the agriculture/horticulture industry.

- Compare the problem-solving and decision making processes.
- Describe the problem-solving method of learning (teaching).

010311-0405

Students will explore ethical issues in agriculture/horticulture occupations.

- Define and explain ethics in agribusiness.

010311-0406

Students will analyze safety skills needed in the agriculture/horticulture industry.

- Explain where accidents occur and agencies associated with workplace safety.
- Explain why accidents occur and how to prevent them.

STANDARD
010311-05

Students will understand basic principles of agriculture/horticulture science.

OBJECTIVES

010311-0501

Students will explore basic soil science principles.

- Determine the nature of soil.
- Investigate soil texture and structure.
- Explain a soil profile.
- Examine moisture-holding capacity.
- Investigate soil degradation.
- Inspect soil erosion and management practices.

- 010311-0502 Students will investigate basic principles of plant science.
- Classify and name plants.
 - Examine plant structures and functions.
 - Examine flowers and fruits.
 - Identify plant types and uses.
 - Determine the importance of photosynthesis and respiration.

- 010311-0503 Students will investigate basic principles of animal science.
- Compare differences between plants and animals.
 - Investigate the anatomy and physiology of animals
 - Examine animal reproduction.
 - Explore the animal industry.

- 010311-0504 Students will explore means of conserving natural resources.
- Determine the importance of natural resource conservation.
 - Describe soil conservation methods and practices.
 - Describe water conservation methods and practices.
 - Investigate the importance of wildlife conservation.
 - Illustrate the importance of forest conservation.

- 010311-0505 Students will describe food science technology.
- Explore food science and its benefits.
 - Explore food preservation methods.
 - Describe food spoilage prevention.
 - Describe food safety and sanitation.
 - Explore food science and world food supply.

STANDARD
010311-06

Students will understand basic agribusiness principles and skills.

OBJECTIVES

- 010311-0601 Students will explore personal finance management.
- Investigate personal finances and goal making.
 - Distinguish the pros and cons of borrowing money.
 - Determine sources of credit.
- 010311-0602 Students will examine business structures and management.
- Explore principles of business management.
 - Research corporations and cooperatives.
- 010311-0603 Students will explain keeping and using records in agricultural occupations.
- Explain the purpose of record keeping.
 - Describe net worth, cash flow, income statements, and computerized record keeping.
 - Investigate budgets and financial analysis ratios.